Fermilab

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April 13, 2010

Mr. Mark E. Bollinger
Acting Manager
Fermi Site Office
U. S. Department of Energy
P. O. Box 2000
Batavia, Illinois 60510

Dear Mr. Bollinger,

Subject: FY2009 Safeguards and Security Nuclear Materials Control and Accountability (NMC&A) Program Self-Assessment

Fermilab's Safeguards and Security Nuclear Materials Control and Accountability Program has been assessed for FY2009. All required programmatic functions were completed in a timely manner and in conformance with applicable DOE requirements and best management practices.

If you have questions, please contact K. Graden of the ES&H Section at (630) 840-4939.

Sincerely,

Nancy L. Grossman, Ph.D.
ES&H Director

Encl.

cc w/encl: B. Chrisman
D. Cossairt
K. Graden
cc w/o encl. S. Holmes
Y.-K. Kim
P. Oddone

ES&H File: Nuclear Materials

SUBJECT:	FERMILAB MANAGEMENT ASSESSMENT PROCEDURE - FORM 1	NUMBER:	3902.1001 FORM 1
RESPONSIBILITY:	Quality Assurance Manager	REVISION:	001
APPROVED BY:	Head, Office of Quality and Best Practices	EFFECTIVE:	04/02/10

ASSESSMENT NUMBER: **DATE(S) CONDUCTED: Various Dates in FY2009**

FUNCTIONAL AREA: Safeguards and Security - Nuclear Materials Control and Accountability (NMC&A) Program

Period of Performance	From: October 1, 2008	To: September 30, 2009	**X Self Selected Mandatory**

Executive Summary

The Fermilab Nuclear Materials Control and Accountability (NMC&A) Program has been assessed in a number of ways during the performance reporting period as discussed below. All required programmatic functions have been completed in a timely manner and in conformance with DOE requirements and best management practice.

Mandatory Topical Areas (1):
On March 9-12, 2009, DOE Chicago Operations Office (CH) Safeguards and Security Services (SSS) conducted a survey of Fermilab's nuclear materials program. This inspection included a review and evaluation of Fermilab's nuclear materials control and accountability program effectiveness and compliance with DOE directives. The review included program administration, materials accounting, material control, and inventory verification. All documentation reviewed as a part of this inspection was found to be current and addressed all program elements. There were no findings in the nuclear materials control and accountability topical areas. This review received a rating of Satisfactory. Fermilab continues to provide reasonable assurance that nuclear materials are accounted for and identified protection needs are met in accordance with DOE directives.

Mandatory Topical Areas (2):
In September of 2009, the DOE Office of Science (SC) conducted a hazard review of Fermilab's radiological facilities. The purpose of this review was to determine the effectiveness of Fermilab's programs to assure that the quantities of radioactive material were quantified and categorized in accordance with 10 CFR Part 830, Nuclear Safety Management, Subpart B and DOE STD 1027-92, Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports. The review consisted of documentation review, interviews, and on-site observations which showed the elements of DOE STD 1027-92 have been implemented at Fermilab. Ten criteria from DOE STD 1027-92 and 10 CFR Part 830, Subpart B were used to evaluate Fermilab's effectiveness in implementing the directives set forth in DOE STD 1027-92. All ten criteria from DOE STD 1027-92 were met. The review identified no findings, one observation, and two noteworthy practices as a result of this review. Fermilab continues to meet these ten review criteria referenced above and the elements of DOE STD 1027-92 continue to be successfully implemented.

Mandatory Topical Areas (3):
In October of 2008, a benchmarking exercise of the Fermilab Security Department was conducted. Time estimates provided to reflect nuclear materials program tasks were found to be as documented.

Mandatory Topical Areas (4):
In October of 2008, special form certificates for nuclear materials in the form of sealed sources that require special form certification were verified and updated. A spreadsheet titled Fermilab Sealed Source & Special Form Certificate Cross-Reference was created to summarize necessary information

regarding all nuclear materials in the form of sealed sources requiring special form certificates. These recordkeeping requirements were met on schedule and in conformance with applicable DOE Orders.

Mandatory Topical Areas (5):
In January of 2009, the following databases were created and cross-referenced to DOE STD 1027-92, Change Notice 1, Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 4580.23, Nuclear Safety Analysis Reports, September, 1997.

1. Depleted Uranium (U-238) weight totals by facility cross-referenced to DOE STD 1027-92.
2. Sealed source activity totals by facility cross-referenced to DOE STD 1027-92.
3. Sealed source activity totals for sources to be disposed cross-referenced to DOE STD 1027-92.

These databases were updated and revised in September, 2009. Nuclear materials inventories were found to be correct as documented in these databases.

Mandatory Topical Areas (6):
Nuclear Material Balance Inventory Reports were completed each quarter of the rating period ahead of schedule. These reports were submitted to DOE Fermi Site Office (FSO) and DOE Chicago Operations Office Safeguards and Security Services. Quarterly material balance reporting includes entering nuclear materials inventory data into Safeguards Management Software (SAMS), creating a file, and sending the file to Nuclear Materials Management and Safeguards System (NMMSS) by encrypted email. The recordkeeping requirements were met on schedule and in conformance with applicable DOE directives.

Mandatory Topical Areas (7):
The annual physical inventory of nuclear materials was conducted on February 26, 2009. All nuclear materials contained in vessels, cryostats, calorimeters, tanks, cylinders, storage safes, and other equipment were inventoried and all nuclear materials were accounted for. A report was completed and submitted to DOE FSO and forwarded to DOE CH SSS. All nuclear materials were found to be as documented and in compliance with DOE requirements.

Mandatory Topical Areas (8):
The Annual Nuclear Materials Inventory Assessment Report was completed on December 3, 2008. This comprehensive report includes required data fields specified by the National Nuclear Security Administration (NNSA) and the office of Nuclear Materials Integration (NA-58). This report provides item line data for every discrete item of depleted uranium, sealed neutron sources, and deuterium gas stored in tanks and cylinders at Fermilab. This report is created in both Microsoft Excel and Microsoft Access format and was submitted to DOE FSO and forwarded to DOE CH SSS. The assessment report was completed ahead of schedule and in conformance with applicable DOE directives.

Mandatory Topical Areas (9):
The Fiscal Year 2009 Forecast of Nuclear Material Requirements Report was completed on July 14, 2008. The forecast report was completed in accordance with DOE Order 410.2, Management of Nuclear Materials. This report was forwarded to DOE FSO and DOE CH SSS. These recordkeeping requirements were met on schedule and in conformance with applicable DOE Orders.

Mandatory Topical Areas (10):
In September of 2008, Fermilab completed the FY2008 Annual Review of Nuclear Material Inventory Adjustments Report. Fermilab reviewed nuclear materials inventory adjustments for FY2008 and verified that inventory adjustments were properly documented. All nuclear materials were found to be

as documented.

Mandatory Topical Areas (11):
Physical inventories of Fermilab's sealed neutron sources were conducted on a monthly basis during this period. All reports were maintained by Fermilab's Nuclear Materials Representative (NMR). These inventories were found to be correct as documented in these reports.

Mandatory Topical Areas (12):
All nuclear materials logs and associated forms were reviewed during this period. Nuclear materials logs reflect shipments and receipts of nuclear materials, on site transfer of nuclear materials, inventory adjustments, and decay spreadsheets. This met the goal of keeping Fermilab's nuclear materials NMC&A logs and forms up-to-date.

Mandatory Topical Areas (13):
Continuing training for Fermilab's Nuclear Materials Representative (NMR) back-up was conducted during this period. This training met the goal of keeping the NMR back-up training up-to-date.

Mandatory Topical Areas (14):
The following nuclear materials control and accountability program procedures were reviewed and revised during this period:

1. The Fermilab Nuclear Materials Control and Accountability Implementation Plan (FNAL NMC&A-1) was revised in June, 2009.
2. The Fermilab Nuclear Materials Control and Accountability Program document (FNAL NMC&A- 2) was revised in September, 2009.
3. The Safeguards Management Software (SAMS) Data Entry Procedure (FNAL NMC&A-5) was updated in June, 2009.
4. Nuclear Materials Inventory Assessment Report Site-Specific Instructions for Tables (FNAL NMC&A-6) was revised in October, 2008.
5. The Chapter 2 of the Fermilab Site Security Plan, Nuclear Materials Control and Accountability was revised during this period.

This met the goal of keeping Fermilab's nuclear materials control and accountability program procedures up-to-date.

Assessment Leader: [signature] 4/14/10

Head D/S/C [signature] Date 4/14/10
Signature Required

Distribution (Distribute to D/S/C QAR, OQBP head, and others as appropriate):